



The bottom left plot of the 9 plots shows the principal compressive stress values. The line at the left of the plot is the maximum allowed stress versus depth and the right line shows the applied stress. Note the shear has applied an additional diagonal compression in the web on top of the expected concrete stress profile from the prestressing force. The two lines on this plot are about to touch at the top of the web indicating that this section is about to fail by crushing of the web.

The two control plots show that the “V-Gxy” curve, that is, the shear-shear strain plot, is descending with increasing shear strain, whereas the lower moment curvature plot is unloading along its loading curve. This indicates that the section is predicted to fail in shear. The maximum predicted shear capacity of the section is 249.4 kips. By scaling this from the loading, it is predicted that the beam would fail in shear at this location if the applied load were to increase to a level of 7.0 kips/foot.

### Member Response

Response-2000 will calculate the full member behaviour for a prismatic section as well. To get a prediction of the behaviour of this 80-foot beam, such an analysis will be performed with the beam subjected to a uniformly distributed load. First select the “Load | Full Member Properties” menu option. Select the “length subjected to shear” at the top as 480 inches. (The analysis is done from one end to the mid-span of the beam.) Also select in the top options a uniform distributed load rather than a constant shear analysis.